INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

Leach, Steven **RIDOUT & MAYBEE LLP** Suite 308

WRITTEN OPINION

1 City Centre Drive Mississauga, Ontario L5B 1M2 CANADA		(PCT Rule 66)		
		Date of mailing (day/month/year)	28.12.2004	
Applicant's or agent's file reference 42370-0002		REPLY DUE	within 2 month(s) from the above date of mailing	
International application No.	International filing date (d	day/month/year)	Priority date (day/month/year)	
PCT/CA 03/02031	30.12.2003		09.01.2003	
International Patent Classification (IPC) F01C1/20	or both national classification	and IPC		
Applicant CONNERS, James M.				

1.	This written opinion is the tirst drawn up by this international Preliminary Examining Authority
2.	This opinion contains indications relating to the following items:

ı	\boxtimes	Basis of the opinion
11		Priority
Ш		Non-establishment of op

inion with regard to novelty, inventive step and industrial applicability

Lack of unity of invention IV

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; \boxtimes citations and explanations supporting such statement

Certain documents cited VΙ

VII Certain defects in the international application

VIII 🗆 Certain observations on the international application

The applicant is hereby invited to reply to this opinion.

See the time limit indicated above. The applicant may, before the expiration of that time limit, When? request this Authority to grant an extension, see Rule 66.2(d).

How?

By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also:

For an additional opportunity to submit amendments, see Rule 66.4. For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis. For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 09.05.2005

Name and mailing address of the international preliminary examining authority:



European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl

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Authorized Officer

Lequeux, F

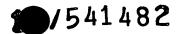
Formalities officer (incl. extension of time limits)

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JC20 Rec'd PCT/PTO U 6 JUL 2005 International application No. 6 PC HCA 03/02031

WRITTEN OPINION

 Basis of the 	opinion
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1.	the	With regard to the elements of the international application (Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally liled"):					
	Des	scription, Pages					
	1-2	5	filed with the demand				
	Cla	ims, Numbers					
	1-2	0	as amended (together with any statement) under Art. 19 PCT				
	Dra	wings, Sheets					
		2-22/22	as originally filed				
2.	With regard to the language , all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.						
These elements were available or furnished to this Authority in the following language: , which is:							
		the language of pub	anslation furnished for the purposes of the international search (under Rule 23.1(b)). lication of the international application (under Rule 48.3(b)). anslation furnished for the purposes of international preliminary examination (under .3).				
3.	Witl inte	h regard to any nucl e rnational preliminary	eotide and/or amino acid sequence disclosed in the international application, the examination was carried out on the basis of the sequence listing:				
		contained in the inte	rnational application in written form.				
		filed together with the international application in computer readable form.					
		_	ntly to this Authority in written form.				
		furnished subsequer	ntly to this Authority in computer readable form.				
		The statement that t	he subsequently furnished written sequence listing does not go beyond the disclosure application as filed has been furnished.				
		The statement that the listing has been furn	he information recorded in computer readable form is identical to the written sequence ished.				
1.	The	amendments have r	esulted in the cancellation of:				
		the description,	pages:				
		the claims,	Nos.:				
		the drawings,	sheets:				

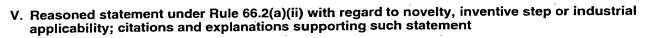
This opinion has been established as if (some of) the amendments had not been made, since they have

been considered to go beyond the disclosure as filed (Rule 70.2(c)).

6. Additional observations, if necessary:

5. 🗆





1. Statement

Novelty (N)

Claims

1-20

Inventive step (IS)

Claims

1-20

Industrial applicability (IA)

Claims

1-20

2. Citations and explanations

see separate sheet



Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: DE 2550360 A D2: AT 311178 B

Preliminary remarks 1.

The application lacks clarity (Art 6 PCT) for the following reasons:

- the expression "power transfer means" used in claim 1 is vague and unclear as it a. does not imply a well-recognized set of technical features;
- the expressions "expanding substantially adiabatically", "the combuster means is b. adapted to receive varying amount ... of power in use" and "the compressor is adapted ...to the load being driven by the power" used in claims 1 and 11 are vague and unclear as they attempt to define the subject-matter in terms of the result to be achieved, which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result. Hence these statements do not add any clear technical features to the subject-matter of the claims and as such they don't limit their scope;
- the expression " a reservoir" used in claims 7-9 is vague as it is not clear what the C. technical features of this reservoir are compared to a normal connection pipe or radiator piping (see for example claims 7 and 8) or even to a pressure tank (see claim 11);
- although the generic expressions " a compressor"; "a positive displacement air d. motor" and " a positive displacement gas expander" are used in claims 1 and 11, it is clear in the light of the description (page 2, lines 23-25; page 3, lines 5-7) that it is the applicant's intention to use the type of machine described rather than any other type. Because of this and of the lack of clear support from the description about other specific types of machines than these in the various illustrated embodiments (fig 1-22), these expressions of claims 1 and 11 should be restricted to the particular type of machines described in claim 14 of the present application;



- it is not clear (claim 1) how a radiator that cools the compressed air discharged by a compressor can reduce the work required by the compressor to compress this air;
- the expression "internal combustion engine" (claim 11) is contradictory to the f. expression "tubular combuster" as, by definition, the characteristic feature of an internal combustion engine is that the combustion chamber is predominantly formed by the working chamber(s) inside the engine and as, from the description and figures (for example fig 1), it is clear that the tubular combuster is a combustion chamber external to the engine.

Independent claim 1 2.

Taking into account the lack of clarity mentioned here above, the present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent claim 1 is not new in the sense of Article 33(2) PCT. The reasons therefore are the following:

D1 discloses (the references in parentheses applying to this document) (fig 30 and page 20, lines 12-31) an engine with a compressor (4); with a radiator (6a and corresponding portions of the piping connecting the compressor and the engine); with combuster means (5,6); with two positive displacement motors (7) in series; with power transfer means (9).

Hence the subject-matter of claim 1 is not new (Art 33(2) PCT). The subjectmatter of claim 1 is industrially applicable (Art 33(4) PCT).

3. Dependent claims 2-10 and 12-13

Dependent claims 2-10 and 12-13 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of Art 33 PCT in respect of novelty and/or inventive step as the combination of features that they contain is already disclosed in the prior art documents (see cited documents and corresponding passages in the search report) taken alone or in combination or are merely a combination of obvious and well-known features (see for example claims 8 or 10). The subject-matter of claims 2-10 and 12-13 is industrially applicable (Art 33(4) PCT).



The combination of the features of independent claim 11, with the necessary clarifications (see point 1), is neither known from, nor rendered obvious by, the available prior art and therefore the subject-matter of claim 1 meets the requirements of Art 33 PCT in respect of novelty and inventive step. The subjectmatter of claim 11 is industrially applicable (Art 33(4) PCT).

Independent claim 14 5.

The subject-matter of claim 14 is not new (Art 33(2) PCT) as D2 discloses (fig 1 and 2; page 3, lines 5-20) a machine with housing means (1); with a multilobe piston (5) and with a pair of gate rotors (6,7) dividing the piston chamber into multiple subchambers (34-37) in communication with fluid ports (8-11) allowing the use of the machine as a compressor or as an expander (page 2, line 1).

Hence the subject-matter of claim 14 is not new (Art 33(2) PCT). The subjectmatter of claim 14 is industrially applicable (Art 33(4) PCT).

Dependent claims 15-20 6.

Dependent claims 15-20 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of Art 33 PCT in respect of novelty and/or inventive step as the combination of features that they contain is already disclosed in the prior art documents (see cited documents and corresponding passages in the search report) taken alone or in combination or are merely a combination of obvious and well-known features (see for example claim 20).

Certain defects in and observations on the international application

- Although claims 1, 11 and 14 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.
- Independent claims are not in the two-part form in accordance with Rule 6.3(b) 2. PCT, which in the present case would be appropriate, with those features known



in combination from the prior art being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

- The features of the claims are not provided with reference signs placed in 3. parentheses (Rule 6.2(b) PCT).
- Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art 4. disclosed in the prior art documents is not mentioned in the description, nor are these documents identified therein.